UNITED STATES DEPARTMENT OF AGRICULTURE

Bureau of Agricultural Engineering

ARTIFICIAL DRYING OF FORAGE CROPS IN THE UNITED STATES

(Extracted from a Progress Report by The Committee on Artificial Dehydration of Forage Crops, American Society of Agricultural Engineers, issued May 1930.)

Revised
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FORAGE CROP DRYERS[1/]

AMERICAN PROCESS DRYER. Manufactured by the American Process Company, 53 Park Place, N.Y. Rotary kiln type. Air is mixed with furnace gasses before coming in contact with material to be dried. Installation on farm of Walker-Gordon Laboratory Company, Juliustown, N. J., used for drying manure, alfalfa and corn fodder.

ARDRIER. Manufactured by Arnold Dryer Company, 1200 Montana Ave., Milwaukee, Wisconsin. Rotary drum type consisting of three drums, one within the other. Stationary or portable. Coal or oil burning. Capacity approximately one ton dried hay per hour. Drying is accomplished by means of undiluted furnace gases at a temperature of about 1500°F. The hay remains in the dryer from 30 seconds to 6 minutes. Power requirements approximately 30 horsepower not including chopping. Installation on farm of G. D. Arnold, Galesville, Wis., used for drying alfalfa and by products from canning factories.

BAYLEY FORAGE DRYER. Manufactured by The Bayley Blower Company, 732-750 Greenbush Street, Milwaukee, Wisconsin. Conveyor type with tunnel 150' long and 10' wide. Coal or oil burning. Built either with open or closed tunnel. Open type uses mixture of air and furnace gases while the closed type uses the undiluted furnace gases. In the former type the mixture enters the dryer at a temperature of approximately 250°F. Capacity about 1½ tons of dried hay per hour with power requirement of 60 h.p. not including grinding. Forage remains in drier about 30 minutes. Used for drying alfalfa and hemp. Two-tunnel installation on farm of Ward Mooring, Bryan, Texas.

FOOD MACHINERY CORPORATION, SAN JOSE, CAL. This process consists in crushing the stems of the alfalfa as it is mowed with purpose of hastening the drying of the stems so that they may be sun-cured in approximately the same time as it takes to dry the leaves.

1/ The mention of these firms implies no particular endorsement by the Department of Agriculture as to the capacity, price, or quality of their product.

FULMER DRYER. Built by the Fulmer Alfalfa Dryer Company, Nazareth, Pennsylvania. Conveyor type with tunnel approximately 200 feet long, built of cinder concrete block. Capacity about 2 tons of dried hay per hour. Power requirements about 58 h.p. not including grinding. Hay remains in dryer about 45 minutes. Installation on Green Acres Farm, owned by J. H. Fulmer, Nazareth, Pennsylvania.

KOON DRYER. Manufactured by A.W.Koon Process Company, New Orleans, Louisiana. This dryer uses the undiluted gases from a furnace at about 1,000°F. as a drying medium. The material to be dried is first cut with an ensilage cutter and then blown through insulated piping in contact with the hot gases. Six fans are used. A considerable amount of the gases are recirculated through the furnace. Capacity about 1½ tons of dried hay per hour. Power requirements are about 150 h.p. not including grinding. The hay passes through the dryer in about 1 minute. Installations on farms of A. Montz, La Place, Louisiana. Used for drying alfalfa, clover, peas, oats, rye and soybeans.

LOUISIANA STATE UNIVERSITY
EXPERIMENT DRYER. Rotary drum type. Drum approximately 40' long and 6' in diameter. Oil burning. The hot combustion gases enter the dryer at about 1,600°F. with little or no air. Capacity approximately one ton of dried alfalfa per hour. Power requirements approximately 6 h.p. not including chopping or grinding. Installation at the Louisiana State University Agricultural Experiment Station, Baton Rouge, Louisiana. Used for drying alfalfa and soybeans.

LOUISVILLE DRYER. Apply Louisville Drying Machine Company, Louisville, Kentucky.

MASON DRYER. Manufactured by Mason Alfalfa Process Company, 1520 Locust Street, Philadelphia, Pennsylvania. Conveyor type, tunnel 150' long by 9' wide.

Special ribbon forming mechanism places material in uniform thickness upon the conveyor. A mixture of furnace gas and air enters the dryer at a temperature of approximately 275° F. The hay remains in the dryer for about 30 minutes. Capacity about 2 tons of dried hay per hour. Power requirements approximately 70 h.p. not including grinding. Installations on farms of Walker-Gordon Laboratory Company, Plainsboro, New Jersey. The company operates a plant near New Castle, Delaware. Used for drying alfalfa, soybeans, wheat, rye, oats, etc.

PURDUE UNIVERSITY
EXPERIMENTAL DRYER. Tray type portable. Alfalfa is blown from ensilage cutter to tank which has double bottom into which hot air is blown.

RANDOLPH DRIER. Manufactured by the O. W. Randolph Co., Toledo, Ohio. Tray type. Dryer consists of compartment which accommodates 6 trays at one time, placed one above the other. The trays containing the wet hay enter at the top and the pans containing the dried hay are removed at the bottom. A mixture of air and furnace gases enters the dryer at a temperature of about 230°F. Temperature control is automatic. Installation at the Pennsylvania State College Agricultural Experiment Station, State College, Pennsylvania.

ROBERTS CHEMICAL DRYER. Apply Roberts Engineering Company, Memphis, Tennessee.

SIMS DRYER. Apply to A. B. Sims, 2 Rector Street, New York City, N. Y.

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